

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

Claims 1 - 13 (Canceled)

Claim 14 (Previously Presented): Biocompatible and biodegradable implant for filling a cavity in a living organism comprising polymer-coated biocompatible and biodegradable granules fused together through polymer linkage, said granules being made of biocompatible and biodegradable materials selected from the group consisting of biopolymers, bioglasses, bioceramics and a mixture thereof, and said granules having an equivalent-diameter in a range from about 350  $\mu\text{m}$  to about 2000  $\mu\text{m}$ ; a major portion of the surface area of said granules being coated with at least one biocompatible and biodegradable layer of a polymer selected from the group consisting of poly( $\alpha$ -hydroxyesters), poly(ortho esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarate), poly(ester amides), poly(ethylene fumarate), polylactide, polyglycolide, polycaprolactone, poly(glycolide-co-trimethylene carbonate), polydioxanone, co-polymers thereof and a blend of those polymers and said polymer layer having a thickness in a range of 2  $\mu\text{m}$  to 300  $\mu\text{m}$  corresponding to a weight fraction of about 4% to about 15% of the weight of said implant.

Claim 15 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein the bioceramic is calcium sulfate or calcium phosphate.

Claim 16 (Previously Presented): Biocompatible and biodegradable implant as in claim 15, wherein the calcium phosphate is selected from the group consisting of monocalcium phosphate monohydrate, monocalcium phosphate anhydrous, dicalcium phosphate dehydrate, dicalcium phosphate anhydrous, tetracalcium phosphate, calcium orthophosphate phosphate, calcium pyrophosphate,  $\alpha$ -tricalcium phosphate,  $\beta$ -tricalcium phosphate, apatite, hydroxyapatite and a mixture thereof.

Claim 17 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein the equivalent-diameter of said granules is in the range of about 500  $\mu\text{m}$  to about 1000  $\mu\text{m}$ .

Claim 18 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein said granules are of a regular shape.

Claim 19 (Previously Presented): Biocompatible and biodegradable implant as in claim 18, wherein said regular shape is a spherical shape.

Claim 20 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein the thickness of the polymer layer is in the range of about 5  $\mu\text{m}$  to about 20  $\mu\text{m}$ .

Claim 21 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein the polymer-linkage is carried out such that after fusing the granules together, an open interconnected porosity with macropores having an average diameter in a range of about 100  $\mu\text{m}$  to about 500  $\mu\text{m}$ , is achieved.

Claim 22 (Previously Presented): Biocompatible and biodegradable implant as in claim 21, wherein the average diameter of the macropores is in the range of about 200  $\mu\text{m}$  to about 300  $\mu\text{m}$ .

Claim 23 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein the biocompatible and biodegradable granules are selected from the group consisting of solid granules, porous granules, hollow granules, hollow granules with at least one opening in the granule wall enclosing the interior hollow space, and mixtures thereof.

Claim 24 (Previously Presented): Biocompatible and biodegradable implant as in claim 23, wherein porous biocompatible and biodegradable granules are used.

Claim 25 (Previously Presented): Biocompatible and biodegradable implant as in claim 24, wherein the porous biocompatible and biodegradable granules include micropores having an average diameter in a range of more than 0 to about 10  $\mu\text{m}$ .

Claim 26 (Currently Amended): Biocompatible and biodegradable implant as in claim 25, 23, wherein the opening in the granule wall of the hollow granules is larger than the average diameter of the micropores in the porous granules.

Claim 27 (Previously Presented): Biocompatible and biodegradable implant as in claim 26, wherein the average diameter of the micropores is in the range of about 0.1  $\mu\text{m}$  to about 6 $\mu\text{m}$ .

Claim 28 (Previously Presented): Biocompatible and biodegradable implant as in claim 25, wherein the porous granules include macropores having an average diameter in a range of more than about 10  $\mu\text{m}$  to about 500  $\mu\text{m}$ .

Claim 29 (Currently Amended): Biocompatible and biodegradable implant as in claim 28, ~~26~~, wherein the average diameter of the macropores is in the range of about 100  $\mu\text{m}$  to about 300  $\mu\text{m}$ .

Claim 30 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, further comprising at least one biological active substance that is integrated into the granules and/or into the biocompatible and biodegradable coating, and/or forming a coating layer itself.

Claim 31 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein mixtures of non-coated and polymer-coated granules are fused together.

Claim 32 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein said biodegradable and biocompatible implant is made of two or more kinds of granules, said two or more kinds of granules being made of different biocompatible materials and/or comprising polymer-coatings that are distinct from each other and/or having different equivalent diameters.

Claim 33 (Previously Presented): Biocompatible and biodegradable implant as in claim 32, wherein the two or more kinds of granules are solid granules, porous granules, hollow

granules, and/or hollow granules with at least one opening in the granule wall, or mixtures thereof, and said implant being shaped in a manner to accommodate the granules.

Claim 34 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein the granules are mixed with microspheres made of a biodegradable and biocompatible material and loaded with at least one biologically active substance.

Claim 35 (Currently Amended): Biocompatible and biodegradable implant as in claim 14, wherein said biocompatible and biodegradable granules are spray-coated with a biocompatible and biodegradable polymer to form a polymer coating ~~having a homogenous~~ thickness.

Claim 36 (Previously Presented): Biocompatible and biodegradable implant as in claim 35, wherein said biocompatible and biodegradable granules are spray-coated in a fluidized bed machine.

Claim 37 (Currently Amended): Biocompatible and biodegradable implant as in claim 35, wherein the ~~homogenous~~ thickness of the polymer coating is in the range of about 5  $\mu\text{m}$  to about 20  $\mu\text{m}$ .

Claim 38 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein said granules are fused together in a mold in a pressurized  $\text{CO}_2$  atmosphere under a pressure in a range of about 20 bar to about 200 bar, for at least about 3 seconds.

Claim 39 (Previously Presented): Biocompatible and biodegradable implant as in claim 38, wherein the pressure is about 50 bar.

Claim 40 (Previously Presented): Biocompatible and biodegradable implant as in claim 38, wherein the granules are under pressure for a range of about 3 seconds to about 180 seconds.

Claim 41 (Previously Presented): Biocompatible and biodegradable implant as in claim 14, wherein said granules are fused together by subjecting them within a mold to a heat treatment at a temperature in a range of about 70° C to about 220° C for at least about 10 seconds.

Claim 42 (Previously Presented): Biocompatible and biodegradable implant as in claim 41, wherein the temperature is in the range of about 75° C to about 90° C.

Claim 43 (Previously Presented): Biocompatible and biodegradable implant as in claim 41, wherein the granules are heat treated for a range of about 10 seconds to about 5 minutes.

Claim 44 (Withdrawn): Method for forming a biocompatible and biodegradable implant for filling a cavity in a living organism, the method comprising: positioning polymer-coated biocompatible and biodegradable granules within a mold, said granules being comprised of biocompatible and biodegradable materials which are selected from the group consisting of biopolymers, bioglasses or bioceramics or a mixture thereof and said granules being selected from solid granules, porous granules, hollow granules, hollow granules with at least one opening in the granule wall, or mixtures thereof, said granules having an equivalent-diameter in a range

of about 350  $\mu\text{m}$  to about 2000  $\mu\text{m}$ ; said granules being coated with a biocompatible and biodegradable layer of a polymer selected from the group consisting of poly( $\alpha$ -hydroxyesters), poly(ortho esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarate), poly(ester amides), poly(ethylene fumarate), polylactide, polyglycolide, polycaprolactone, poly(glycolide-co-trimethylene carbonate), polydioxanone, co-polymers thereof or a blend of those polymers and said polymer layer having a thickness in a range of about 2  $\mu\text{m}$  to about 300  $\mu\text{m}$ , corresponding to a weight fraction of about 4% to about 15% of the weight of the said implant; and sterilizing and fusing together the granules within a mold through polymer linkage by subjecting the granules for a time range of at least about 3 seconds, to a pressurized  $\text{CO}_2$  atmosphere, said  $\text{CO}_2$  atmosphere having a pressure in a range of about 20 bar to about 200 bar, at a temperature in a range between about 20° C to about 37° C.

Claim 45 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 44, further comprising filling a cavity of a living organism with the implant, the cavity comprising an extraction wound or a bone tissue defect.

Claim 46 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 44, wherein the bioceramic is calcium sulfate or calcium phosphate.

Claim 47 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 46, wherein the calcium phosphate is selected from the group consisting of monocalcium phosphate monohydrate, monocalcium phosphate anhydrous, dicalcium phosphate dihydrate, dicalcium phosphate anhydrous, tetracalcium phosphate, calcium orthophosphate

phosphate, calcium pyrophosphate,  $\alpha$ -tricalcium phosphate,  $\beta$ -tricalcium phosphate, apatite, hydroxyapatite, or a mixture thereof.

Claim 48 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 44, wherein the equivalent diameter of the granules is in the range of about 500  $\mu\text{m}$  to about 1000  $\mu\text{m}$ .

Claim 49 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 44, wherein the granules are of a regular shape.

Claim 50 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 49, wherein the regular shape is a spherical shape.

Claim 51 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 44, wherein the polymer layer has a thickness in the range of about 5  $\mu\text{m}$  to about 20  $\mu\text{m}$ .

Claim 52 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 44, wherein the time range is about 15 seconds to about 180 seconds out 180 seconds.

Claim 53 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 44, wherein the pressure is about 50 bar.



Claim 54 (Withdrawn): Method for forming a biocompatible and biodegradable implant for filling a cavity in a living organism, the method comprising:

selecting granules of biocompatible and biodegradable materials from polymer-coated and non-coated solid granules, porous granules, hollow granules, hollow granules with at least one opening in the granule wall, and mixtures thereof; and

sterilizing and fusing together the granules within a mold by subjecting the granules for at least about 10 seconds, to a heat treatment at a temperature range of about 70° C to about 220° C, said granules being composed of biocompatible and biodegradable materials which are selected from the group consisting of biopolymers, bioglasses, bioceramics or a mixture thereof, and said granules having an equivalent-diameter in a range of about 350  $\mu\text{m}$  to about 2000  $\mu\text{m}$ ; said granules being coated with a biocompatible and biodegradable layer of a polymer selected from the group consisting of poly( $\alpha$ -hydroxyesters), poly(ortho esters), polyanhydrides, poly(phosphazenes), poly(propylene fumarate), poly(ester amides), poly(ethylene fumarate), polylactide, polyglycolide, polycaprolactone, poly(glycolide-co-trimethylene carbonate), polydioxanone, co-polymers thereof or a blend of those polymers and said polymer layer having a thickness in a range of about 2  $\mu\text{m}$  to about 300  $\mu\text{m}$ , corresponding to a weight fraction of about 4% to about 15% of the weight of the said implant.

Claim 55 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the cavity is an extraction wound or any bone tissue defect.

Claim 56 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the granules are subjected the to heat treatment for about 10 seconds to about 5 minutes.

Claim 57 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the temperature range is about 80° C to about 85° C.

Claim 58 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the bioceramic is calcium sulfate or calcium phosphate.

Claim 59 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the calcium phosphate is selected from the group consisting of monocalcium phosphate monohydrate, monocalcium phosphate anhydrous, dicalcium phosphate dihydrate, dicalcium phosphate anhydrous, tetracalcium phosphate, calcium orthophosphate phosphate, calcium pyrophosphate,  $\alpha$ -tricalcium phosphate,  $\beta$ -tricalcium phosphate, apatite, hydroxyapatite, or a mixture thereof.

Claim 60 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the equivalent-diameter of the granules is in the range of about 500  $\mu\text{m}$  to about 1000  $\mu\text{m}$ .

Claim 61 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the granules are of a regular shape.

Claim 62 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 61, wherein the regular shape is a spherical shape.

Claim 63 (Withdrawn): Method for forming a biocompatible and biodegradable implant as in claim 54, wherein the polymer layer has a thickness in the range of about 5  $\mu\text{m}$  to about 20  $\mu\text{m}$ .